

What Is Claimed Is:

1. A method of improving the properties of a cementitious mixture, wherein said method comprises the steps of:

a. providing a cementitious mixture;

5 b. providing unitized fibrous constructs, each of said unitized fibrous constructs being comprised of:

I. two or more reinforcing fibrous components;

ii. one or more circumferential retaining elements;

10 iii. wherein said reinforcing fibrous components are combined in an essentially parallel orientation and said circumferential retaining element circumscribes about an overall circumference described by said combined and essentially parallel reinforcing fibrous components;

c. adding into said cementitious mixture a quantity of unitized fibrous constructs so as to form a cementitious mixture and unitized fibrous construct blend; and

15 d. mechanically agitating said cementitious mixture/unitized fibrous construct blend so as to disrupt said circumferential retaining elements and disperse said reinforcing fibrous components into said cementitious mixture.

2. A method as in claim 1, wherein said fibrous constructs are natural fibers.

20 3. A method as in claim 2, wherein said natural fibers are selected from the group consisting of rayon, cotton, pulp, flax, hemp, and the combinations thereof.

4 A method as in claim 1, wherein said fibrous constructs are synthetic fibers.

25 5. A method as in claim 4, wherein said synthetic fibers are selected from the group consisting of polyesters, polyolefins, polyamides, and the combinations thereof.

30 6. A method as in claim 1, wherein said unitized fibrous constructs exhibit an overall circumference of between about 3 mm to 150 mm.

7. A method as in claim 6, wherein said unitized fibrous constructs exhibit an overall circumference of between about 3 mm to 30 mm.

8. A method as in claim 1, wherein said unitized fibrous constructs exhibit a length of between about 8 mm to 100 mm.

5 9. A method as in claim 8, wherein said unitized fibrous constructs exhibit a length of between about 12 mm to 50 mm.

10. A method as in claim 1, wherein said reinforcing fibrous compounds exhibit a finite staple length.

10 11. A method as in claim 1, wherein said reinforcing fibrous components exhibit an infinite length.

12. A method as in claim 1, wherein a portion or all of said reinforcing fibrous components are placed under tension.

15 13. A method as in claim 1, wherein said circumferential retaining element circumscribes no more than 80% of the total surface area of said unitized fibrous constructs.

14. A method as in claim 11, wherein said unitized fibrous constructs comprise perforated segments.

15. A method of improving the properties of a cementitious mixture, wherein said method comprises the steps of:

20 a. providing a cementitious mixture;
b. providing unitized fibrous constructs, each of said unitized fibrous constructs being comprised of:

25 I. two or more reinforcing fibrous components;
ii. an interlocking means;
iii. wherein said reinforcing fibrous components are combined in an essentially parallel orientation and said interlocking means is applied about an overall circumference described by said combined and essentially parallel reinforcing fibrous components;

c. adding into said cementitious mixture a quantity of unitized fibrous constructs so as to form a cementitious mixture and unitized fibrous construct blend; and

5 d. mechanically agitating said cementitious mixture/unitized fibrous construct blend so as to disrupt said interlocking means and disperse said reinforcing fibrous components into said cementitious mixture.

16. A method as in claim 15, wherein said fibrous constructs are natural fibers.

10 17. A method as in claim 16, wherein said natural fibers are selected from the group consisting of rayon, cotton, pulp, flax, hemp, and the combinations thereof.

18. A method as in claim 15, wherein said fibrous constructs are synthetic fibers.

15 19. A method as in claim 15, wherein said synthetic fibers are selected from the group consisting of polyesters, polyolefins, polyamides, and the combinations thereof.

20. A method as in claim 15, wherein said unitized fibrous constructs exhibit an overall circumference of between about 3 mm to 150 mm.

20 21. A method as in claim 20, wherein said unitized fibrous constructs exhibit an overall circumference of between about 3 mm to 30 mm.

22. A method as in claim 15, wherein said unitized fibrous constructs exhibit a length of between about 8 mm to 100 mm.

23. A method as in claim 22, wherein said unitized fibrous constructs exhibit a length of between about 12 mm to 50 mm.

25 24. A method as in claim 15, wherein said interlocking means is a binder.

25. A method as in claim 15, wherein said interlocking means comprises no more than 80% of the total surface area of said unitized fibrous constructs.

26. A method as in claim 15, wherein a portion or all of said reinforcing fibrous components are placed under tension.

27. A method as in claim 15, wherein said reinforcing fibrous components exhibit a finite staple length.

5 28. A method as in claim 15, wherein said reinforcing fibrous components exhibit an infinite length.

29. A cementitious reinforcement comprising unitized fibrous constructs, each of said unitized fibrous constructs being comprised of two or more reinforcing fibrous components and one or more circumferential retaining elements, wherein said reinforcing fibrous components are combined in an essentially parallel orientation and said circumferential retaining element circumscribes about an over all circumference described by said combined and essentially parallel reinforcing fibrous components.

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30. A cementitious reinforcement as in claim 29, wherein said circumferential retaining element circumscribes no more than 80% of the total surface area of said unitized fibrous constructs.

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31. A cementitious reinforcement comprising unitized fibrous constructs, each of said unitized fibrous constructs being comprised of two or more reinforcing fibrous components and an interlocking means, wherein said reinforcing fibrous components are combined in an essentially parallel orientation and said interlocking means is applied about an overall circumference described by said combined and essentially parallel reinforcing fibrous components.

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32. A method as in claim 31, wherein said interlocking means comprises no more than 80% of the total surface area of said unitized fibrous constructs.

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